

COMPARATIVE PHYSIOLOGY (HBSc)

Department of Biology

Physiology is the study of living matter and its interaction between internal and external environments. It integrates physical and life sciences in order to understand body functions and the origins of disease in both plants and animals. This discipline incorporates the study of control mechanisms, compensations, and cooperation among body molecules, cells, tissues, and organs. Physiology unifies the life sciences from molecule to organism, providing the link from genomics and molecular signaling pathways to behaviour and disease. Emerging fields for physiologists are the analysis of the functional implications of genomic sequence variation, developmental factors leading to chronic illness, and novel approaches for regenerative medicine. Physiologists find applications for their work in agriculture, veterinary medicine, military research, air and space travel, and exercise and fitness.

MAKE THE MOST OF YOUR TIME AT UTM!

We want to help you maximize your university experience, so we've pulled together information and interesting suggestions to get you started. As you review the chart on the inside pages, note that many of the suggestions need not be restricted to the year they are mentioned. In fact, activities such as joining an academic society, engaging with faculty and seeking opportunities to gain experience should occur in each year of your study at UTM. Read through the chart and create your own plan using **My Program Plan** found at www.utm.utoronto.ca/program-plans

Programs of Study (POSt)

- Specialist Program ERSPE0482 Comparative Physiology (Science)
- Minor Program ERMIN2364 Biology (Science)
- Minor Program ERMIN0840 Biomedical Communications (Science)

Check out...

How do plants respond to environmental factors and global change? Find out in BIO312H5 through the physiological study of plants. Get excited about vertebrate form and function! In BIO354H5 the design and adaptive consequences of vertebrate structure are revealed.

What can I do with my degree?

The career you choose will depend on your experience and interests. Visit the Career Centre to explore your career options.

Careers for Graduates: Physiotherapist; Ornithologist; Informationist; Biological technician; Zoologist; Doctor; Physician's assistant; Nurse; Research technician; Health policy analyst; Herbarium technician.

Workplaces: Government; Zoos; Aquariums; Pharmaceuticals; Academic medical centres/laboratories; Manufacturing; Hospitals and medical centres.



COMPARATIVE PHYSIOLOGY

SPECIALIST Program Plan

HOW TO USE THIS PROGRAM PLAN

Read through each year. Investigate what appeals to you here and in any other Program Plans that apply to you.

Visit www.utm.utoronto.ca/program-plans to create your own plan using [My Program Plan](#). Update your plan yearly.



	1 ST YEAR	2 ND YEAR
PLAN YOUR ACADEMICS*	<p>Enrol in courses BIO152H5, 153H5; CHM110H5, 120H5; and MAT134Y5/ 135Y5/ 137Y5. Attain 1.0 credit from the second list of required first year courses in the Academic Calendar.</p> <p>Choose a program of study (Subject POST) once you complete 4.0 credits. Use the Degree Explorer Planner and the Academic Calendar to plan your degree.</p> <p>Start strong and get informed with utmONE and LAUNCH through the Office of Student Transition. Join a RGASC Peer Facilitated Study Group.</p>	<p>Enrol in courses BIO202H5, 203H5, 205H5, 206H5, 207H5, 210Y5; and STA215H5.</p> <p>Work in a foreign lab through the iROP program. Speak to the IEC Global Mobility Coordinator to learn more. Prefer staying local? Apply for ROP courses BIO299Y and BIO399Y. Visit the EEO website for ROP Course Prerequisites. Attend the RGASC's P.A.R.T. to enhance your research skills.</p>
BUILD SKILLS	<p>Use the Co-Curricular Record (CCR). Search for opportunities beyond the class room, and keep track of your accomplishments.</p> <p>Attend the Get Experience Fair through the Career Centre (CC) to learn about on- and off-campus opportunities.</p>	<p>Use the Career Learning Network (CLN) to find postings for on- and off-campus work and volunteer opportunities as well as Work-Study.</p> <p>Ask your professor about volunteering in their lab.</p>
BUILD A NETWORK	<p>Networking simply means talking to people and developing relationships with them. Start by joining the Erindale Biology Society (EBS). Follow them @utmEBS. Go to the EBS Meet the Prof Night, or the Biology department's Walk with your Professor.</p> <p>Visit the UTM Library Reference Desk.</p>	<p>Do you have a professor you really like or connect with? Ask them a question during office hours. Discuss an assignment. Go over lecture material. Don't be shy! Learn Tips On How to Approach a Professor available through the Experiential Education Office (EEO).</p>
BUILD A GLOBAL MINDSET	<p>Attend events held by the International Education Centre (IEC) to explore different cultures through food, music, and sport or through sight-seeing around the GTA.</p>	<p>Embark on a UTM Abroad Co-Curricular Experience to Peru in our BIO210Y5 class through the IEC. Travel with a faculty member and work alongside local partners conducting research into health and hygiene.</p> <p>Prefer traveling in Canada? Check out the IEC's UTM Across Canada program.</p>
PLAN FOR YOUR FUTURE	<p>Attend the Program Selection & Career Options workshop offered by the Office of the Registrar and the CC.</p> <p>Check out Careers by Major at the CC to see potential career options.</p>	<p>Explore careers through the CC's Extern Job Shadowing Program. Ask the Biology Undergraduate Assistant about the BioPath: Professional Development Program.</p> <p>Considering further education? Attend the CC's Graduate and Professional Schools Fair. Talk to professors – they are potential mentors and references for further education.</p>

*Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.

3 RD YEAR	4 TH OR FINAL YEAR
<p>Enrol in courses BIO304H5, 310H5, 312H5, 360H5, 409H5; CHM242H5 and 243H5. Attain 2.0 credits from a list in the Academic Calendar.</p> <p>Throughout your undergraduate degree:</p> <ul style="list-style-type: none"> use the Degree Explorer to ensure you complete your degree and program requirements. see the Office of the Registrar about degree requirements and the Biology Undergraduate Advisor about program requirements. 	<p>Attain 1.0 additional BIO credits. Ensure you have at least 5.0 credits at the 300/400 level, of which 1.0 must be at the 400 level.</p> <p>Log on to ACORN and request graduation.</p>
<p>Explore your interests. Why not pass on your passion for science? Be a UTM Let's Talk Science Outreach volunteer.</p>	<p>Apply to the Ontario Ministry of Natural Resources Internship Program as a recent graduate. Look at the MNRF website for eligibility and application details.</p> <p>Gain research skills by working one-on-one with graduate students and a professor through BIO481Y5. Speak to the Biology Undergraduate Advisor.</p>
<p>Establish a professional presence on social media (e.g. LinkedIn).</p>	<p>Join a professional association. Check out the Canadian Physiological Society. Go to Ontario Biology Day.</p>
<p>Get a global experience through our Biology Seminar Series. Every Friday during the academic year, the Department of Biology hosts an exciting seminar given by a guest speaker. Guest speakers are from Ontario, across Canada, as well as International. Topics cover every aspect of biology. All Biology students are welcome to attend. Feel free to bring your lunch!</p>	<p>Do you want to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in BIO416H5 to choose from a variety of field courses offered through the Ontario Universities Program in Field Biology.</p>
<p>What's your next step after undergrad?</p> <p>Entering the workforce? Evaluate your career options through a CC Career Counselling appointment. Create a job search strategy — book a CC Employment Strategies appointment.</p> <p>Considering further education? Research application requirements, prepare for admission tests (LSAT, MCAT), and research funding options (OGS, NSERC, CIHR)</p>	<p>Market your skills to employers. Get your resume critiqued at the CC. Attend the CC workshop Now That I'm Graduating What's Next?</p> <p>Write a strong application for further education. Attend the CC's Mastering the Personal Statement workshop.</p>

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COMPARATIVE PHYSIOLOGY

FUTURE STUDENTS

Skills developed in Comparative Physiology

To be competitive in the job market, it is essential that you can explain your skills to an employer. Visit the Career Centre to learn how to articulate and market the following skills:

Communication & interpersonal: write scientific reports; present research findings; interact professionally with a multidisciplinary team of researchers, technicians, students and professors; and literacy writing.

Research: collect and preserve field organisms; dissect preserved or euthanized specimen; inspect specimens; and analyze and evaluate information.

Technical: use specialized computer programs; perform laboratory procedures; maintain laboratory equipment and instrumentation; and comply with quality control procedures.

Quantitative: analyze data for trends and apply statistical tests to data.

Critical thinking & problem-solving: logically interpret trends and results.

Get involved

Check out student organizations on campus. Here are a few:

- Erindale Biology Society (EBS)
- UTM Student Union (UTMSU)
- UTM Athletics Council (UTMAC)

For a listing of clubs on campus visit www.utm.utoronto.ca/clubs.

Services that support you

- AccessAbility Services (AS)
- Career Centre (CC)
- Centre for Student Engagement (CSE)
- Experiential Education Office (EEO)
- Health & Counselling Centre (HCC)
- Indigenous Centre (IC)
- International Education Centre (IEC)
- Office of Student Transition (OST)
- Office of the Registrar (OR)
- Recreation, Athletics and Wellness Centre (RAWC)
- Robert Gillespie Academic Skills Centre (RGASC)
- UTM Library, Hazel McCallion Academic Learning Centre (HMALC)

Department of Biology

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Admission to UTM

All program areas require an Ontario Secondary School Diploma, or equivalent, with six Grade 12 U/M courses, or equivalent, including English. The admission average is calculated with English plus the next best five courses. The Grade 12 prerequisites for this program are Advanced Functions, Biology and Chemistry. The approximate average required for admission is low- to mid-80s. More information is available at utm.utoronto.ca/viewbook.

NOTE: During the application process, applicants will select the Life Sciences admissions category, but will not officially be admitted to a formal program of study (Specialist, Major, and/or Minor) until after first year.

Sneak Peek

Curious about animal physiology? Discover the diversity of structure and function in animals in BIO202H5. At UTM, Physiology explores a variety of topics, such as endocrinology, cardiovascular physiology, neurophysiology, and sensory physiology.

Effective biological training involves careful study of real organisms, both living and dead. Almost all Biology courses with laboratories involve students in one or more of the following activities with animals, plants, and/or microorganisms: collecting and preserving organisms from the field; dissecting or handling preserved or euthanized specimens (or properly anaesthetized living specimens); observing and making measurements on organisms maintained under laboratory conditions approved by the Canadian Council of Animal Care.

Student Recruitment & Admissions

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905-828-5400

www.utm.utoronto.ca/future-students

